

**ABSTRACT OF THE DISCLOSURE**

An automated apparatus and method for measuring properties of optical components based on wavefront sensing and analysis. A wavefront of predetermined profile is directed at a surface to be measured so that it is more or less distorted in accordance with the shape of the surface and the distorted wavefront is sensed and analyzed. From the information derived from the distorted wavefront and other knowledge of the relationship between the surface and position of the wavefront of predetermined profile, the shape of the surface may be inferred along with other properties such as radius of curvature, focal length, conic constants, asphericity, toricity, tilt, and decentering. Concave, convex, cylindrical, and flat parts may be measured along with wavefront errors in bandpass transmitting components such as lenses, filters, and windows.